

**Notice of Allowability**

Application No.

10/727,971

Examiner

Tuyen Q Tra

Applicant(s)

HAYASHI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02/03/2004.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☒ The drawings filed on 03 February 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 1203
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### **Examiner's Amendment**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. The application's Abstract has been amended to in narrative form and generally limited to a single paragraph on a separate sheet in the range of 50 to 150 words as follow:

An optical signal processor comprises a first input terminal for a pulse signal light with a signal wavelength, a second input terminal for a probe light with, probe wavelength different from the signal wavelength, a first splitter to split the probe light into two portions, an XPM optical device to modulate the one portion of the split output lights from the splitter, a second splitter to split light with the probe wavelength phase-modulated by the XPM optical device into two portions, a first combiner to combine the other portion the spilt output lights from the first splitter with the one portion of the split output lights from the second splitter, and a second combiner to combine the other portion of the split output lights from the second splitter with the output light from the first combiner.

### **Reason For Allowance**

3. Claims 1-13 are allowed.

4. Following is an examiner's statement of reasons for allowance:

The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102

or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims 1, 3 and 9, which include (claims 1,9) a second splitter for splitting an output of the XPM optical device into a first phase-modulated portion and a second phase-modulated portion; a first combiner to combine the second probe light portion with the first phase-modulated portion in in-phase relation during a period corresponding to a non-pulse period of the pulse signal light; and a second combiner to combine the second phase-modulated portion with an output light from the first combiner in in-phase relation during a period corresponding to a pulse period of the pulse signal light; (claim 3) method for inputting a pulse signal light with signal wavelength; inputting a probe light with a wavelength different from the pulse signal wavelength; splitting the probe light into two portions to generate a first and second probe light components; modulating optical phase of the first probe light component using an XPM device according to amplitude variation of the pulse signal light; splitting a phase-modulated first probe light component output of the XPM device into two portions to generate a first and a second phase-modulated lights; combining the first phase-modulated light with the second probe light component at approximately equivalent amplitude in in-phase relation during a period corresponding to a non-pulse period of the pulse signal light; and combining the second phase-modulated light with the combined lights of the first phase-modulated light and the second probe light component in in-phase relation during a period corresponding to a pulse period of the pulse signal light.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Usami et al. (U.S. Patent 6,728,019 B2) disclose an optical gate and optical phase modulator in figure 1 comprising of a mean to divide an optical signal into two orthogonal polarization components and to output them as a first polarization component and a second polarization component; a semiconductor optical amplifier to modulate the phase of the second polarization component output from the polarization divider according to a control light; an assist light supplier to supply to the semiconductor optical amplifier an assist light to help the recovery of the refractive index variation of the semiconductor optical amplifier caused by the control light; a polarization combiner to combine the first and second polarization components of the optical signal transmitting on the semiconductor optical amplifier. However, Usami et al. does not teach or suggest a second splitter for splitting an output of the XPM optical device into a first phase-modulated portion and a second phase-modulated portion; a first combiner to combine the second probe light portion with the first phase-modulated portion in in-phase relation during a period corresponding to a non-pulse period of the pulse signal light; and a second combiner to combine the second phase-modulated portion with an output light from the first combiner in in-phase relation during a period corresponding to a pulse period of the pulse signal light and method thereof.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (571) 272-2343. The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps, can be reached on (571) 272 - 2328. The fax number for this Group is (703) 872-9306.

tt

August 17, 2004



Hung Xuan Dang  
Primary Examiner